MultiModemManager

MR4800E Rack Controller
Owner's Manual

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Systems

MR4800E Rack Controller

Owner's Manual

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Revision	Description
B (09/30/96)	Manual revised to include World Wide Web Browser interface information.
C (12/16/96)	Manual revised to include new commands and technical and editorial information.
D (9/15/97)	Manual revised to include new commands and technical and editorial information.

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MultiModem**Manager**

Chapter 1 - Introduction & Description

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1.1 Introduction

This manual is intended to provide the information needed for field installation of a Multi-Tech MR4800E Rack Controller Module (henceforth, MR4800E) into a previously-installed and operational CC4800 **Multi**Modem**Manager** rack. The CC4800 is shipped standard without an MR4800E; this manual documents the installation of an optional MR4800E.

1.2 Product Description

The MR4800E contains the processor and memory for intelligent SNMP management of the modems in the rack. The front panel contains an RJ45 connection for Ethernet UTP attachment to a TCP/IP Ethernet network and a 9-pin serial connection for PPP attachment to a remote TCP/IP network. The front panel provides 16 two-color LEDs for MR4800E card status and 4 Ethernet status LEDs.

The MR4800E Rack Controller Module front panel is shown below.
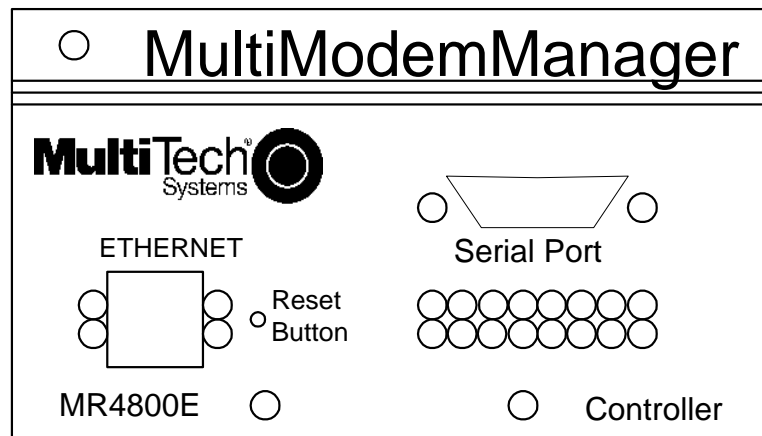
Figure 1-1. MR4800E Rack Controller Module front panel

1.3 Features

The MR4800E is an optional part of the **Multi**Modem**Manager** system, Multi-Tech System's high-density intelligent modem/rack facility with network management capability. When you have installed the **Multi**Modem**Manager** hardware and software, you will gain centralized modem rack management to control modems, continuously monitor connections, log the data, and report fault events.

1.4 Specifications

The MR4800E is designed to meet the following specifications:

- contains one Motorola MC68360 25 MHz microprocessor

- provides 8 MB of RAM for volatile storage

- provides 2 MB of flash RAM: 1 MB for program space and 1 MB for nonvolatile file system space

- provides Ethernet 10Base-T connector which is an RJ-45 for LAN connection to a TCP/IP Ethernet network

- provides EIA RS-232C connector for PPP connection to a TCP/IP Ethernet network

- provides one RS-232C configuration port out of the back of the rack

- 16 two-color LEDs for quick view of modem card status

- 4 Ethernet status LEDs

- Recessed reset button

- Dimensions: 1.75 x 4.2 x 15 inches (HxWxD)
                          4.2 x 11.5 x 37.4 cm (HxWxD)

- Weight: 1.0 Lbs. (0.45 Kg.)

- Operating Temperature: 0^0 to 50^0 (32^0 to 120^0 F)

- Power Requirements: 60 Hz, 600mA@5V

- Limited Warranty: Five years

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Chapter 2 - Hardware Installation & Quick Starts

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2.1 Introduction

This chapter provides the information needed to install your MR4800E Rack Controller into a Model CC4800 **Multi**Modem**Manager** Rack. This equipment should only be installed by properly qualified service personnel.

The MR4800E is illustrated below (shown with the factory defualt configuration settings),
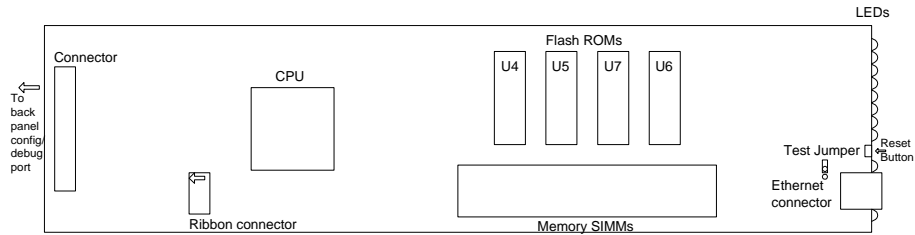
Figure 2-2. MR4800E Rack Controller Card

2.2 Battery Warning

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

The MR4800E Controller circuit board includes a battery that maintains the MR4800E's setup information when the MultiModemManager is turned off or disconnected from power. The battery can maintain the setup information for approximately 10 years with no external power, and longer when the MR4800E is turned on and operating normally. This battery is soldered onto the circuit board and cannot be replaced by the user.

If, for some reason, the MR4800E's battery should fail, please contact Multi-Tech Technical Support at (800) 972-2439 for replacement instructions.

2.3 Hardware Installation Procedure

To install a MR4800E, perform the following steps.

Step   **Procedure**

1.   Unpack the MR4800E from its packaging and perform a visual inspection of the hardware. If you are concerned about the condition of your MR4800E, call Technical Support.

2.   Remove the blank controller panel or your MR4800 controller from the CC4800 rack. The MR4800 and MR4800Es are hot-swappable.

3.   Holding the MR4800E by its U-bolt and the bottom panel, place the MR4800E into the open slot of the CC4800 rack. Make sure the side rails of the MR4800E mate properly with the plastic guides of the CC4800.

4.   Slide the MR4800E into the CC4800 rack until you feel the MR4800E connector contacts the socket at the back of the CC4800 chassis.

5.   Tighten the MR4800E retaining screw.

6.   Turn the PS4800 power switch On (to the | position).

7.   Observe the PS4800 "Outputs Good" LED. If not lit, refer to Chapter 5 of this manual. If lit, proceed with **Multi**Modem**Manager** operation (Chapter 4 of **Multi**Modem**Manager** Owner's Manual).

Note: A self-test is run each time the **Multi**Modem**Manager** is powered on. Refer to Chapter 5 of the **Multi**Modem**Manager** Owner's manual for more details on the power on self-test.

2.4 Ethernet Cabling

The CC4800 rack front panel contains one female RJ-45 connector. This connector is used to connect the MR4800E to an Ethernet network running TCP/IP. This connector must be connected to the TCP/IP network that the management console (running the MultiModemManager software or optionally, a third-party SNMP manager) is to be run on in order for the MR4800E to be configured.

2.5 Serial Cabling

If you wish to connect the CC4800 rack to the TCP/IP network using a serial link (i.e., via PPP or SLIP) instead of using the Ethernet link, the 9-pin connector on the front panel of the MR4800E can be used.

There is a 25 pin RS-232 port located behind the power supply on the back of the CC4800 rack that is used for performing diagnostics and configuration.

2.6 Quick Starts

2.6.1 MR4800E Quick Start

Follow the steps below to configure your MR4800E.

1. Power down your CC4800 rack.

2. Insert the MR4800E into your CC4800 rack.

3. Plug one end of the Ethernet cable in the Ethernet connector on the front of the MR4800E and the other end in the Ethernet connector in the wall.

4. Run MultiExpress (or any data comm package) at 115,200 with no flow control. Connect the COM Port associated with the data comm package to the RS-232 port on the back of the CC4800 rack.

5. Turn the power on for the CC4800 rack and for the terminal. If the power is already on, press the Reset Button on the MR4800E front panel with the end of a paper clip.

6. You should see a screen that says "Welcome to the MultiModemManager MR4800E" and a DOS prompt.

7. At the userid prompt, type "supervisor"

8. At the password prompt, type "supervisor"

9. The message, "MultiModemManager MR4800E Environment setup" is displayed. You will be prompted to enter the IP address of the MR4800E (i.e., IP address assigned to you by your network administrator), default Trap IP address (i.e., IP address of the Supervisor), default gateway IP address (i.e., IP address of the local router, if any), subnet mask, and community strings.

10. You will be prompted to change the supervisor user id and password.

11. Reset the MR4800E by pressing the reset button on the front with a paper clip or power the rack off and on.

Note: Do not hit a key to start manually. Allow the MR4800E to start automatically.

12. Every time after this, the MR4800E will start automatically when you power up the rack.

2.6.2 Supervisor Console Quick Start

1. On the supervisor console, install the MultiModemManager software (see MultiModemManager Owner's Manual for more information).

2. Install the Newt TCP/IP package.

3. After the installation, run the MultiModemManager software.

4. Click on Setup | SNMP | Mode | Supervisor.

5. Click on the Yes button when you are asked if you are sure.

6. In the Modem Group window, click on the World icon.

7. Click on the Add button.

8. Type the IP address of the MR4800E (the same one you used in step 9 of the MR4800E Quick Start).

9. Click on OK.

10. The IP will "turn green" indicating the supervisor console is able to communicate with the remote MR4800E.

11. System configuration is done using the supervisor console as specified in Section 2.7.

2.7 Supervisor Console Configuration

1.   Set up security accounts by using the Security DB Editor (part of the MultiModemManager software).

2.   Set up configuration files using the Configuration Manager (part of the MultiModemManager software).

3.   FTP the database file(s), *.DB, and configuration files, (*.cfg), to the MR4800E.

4.   Create modem groups (with the MultiModemManager software) for the IP depending on how you want to use the modems.

5.   Set modem inventory information for the modems.

6.   Associate configuration files with the appropriate modems.

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Chapter 3 - Hardware Operation

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3.1 Introduction

The operation of the MR4800E consists of observing the front panel indicators (refer to Chapter 5). If the optional MultiModemManager software is installed, operation will include running the windows-based menu and command functions from a dedicated management console (refer to the MultiModemManager's Owner's Manual).

3.2 Security

The MR4800E has a security system to prevent unauthorized system modification by Telnet, Web browser, or FTP users who access the system via the TCP/IP network or the diagnostic serial port on the back of the CC4800 rack. SNMP and MultiModemManager software security is done by the selection of SNMP read and write community strings.

There are three levels of security, guest, operator, and supervisor. There are also default userids and passwords for each level (see table below).

	Supervisor	**Operator**	**Guest**
Security Level	Can perform all management commands	Can perform non-destructive management commands	Can only view information
Default User ID	supervisor	operator	guest
Default Password	supervisor	operator	guest

Once logged in you can change your user identification and password

USERID -   Allows you to change your user identification

PASSWD -   Allows you the change your password

3.3 File System

The MR4800E utilizes a file system for storing configuration, security, and event information. There are two drives on the system: A and B. The A drive is used for non-volatile information such as configuration and security database files, and is about 1 MB in size. The B drive is for volatile information such as event files and is about 6.5 MB in size. Each drive has an MMM directory on it. A:\MMM stores all the configuration information for the system. B:\MMM\MR.LOG contains all of the event files for the system. The file system can be accessed either through the command line interface or by using FTP.

3.3.1 Event Files

One file for each hour is started in the format of: MMDDHHYY.HR, where MM is the month, DD is the day, HH is the hour, and YY is the last two digits of the year. When the drive fills up, the oldest .HR file is deleted. The number of events your MR4800E will hold depends on the number of calls you receive in a day. Event files can be FTPed off the MR4800E and analyzed using the Stastical Analyzer which is part of the MultiModemManager software.

3.4 SNMP Interface

The MR4800E can be controlled/monitored using SNMP through the MultiModemManager or a third party SNMP manager.

To receive traps from the MR4800E, the SNMP manager should login using the entry in the system table. In that entry, do a set of "login PUBLIC". When you are done monitoring the MR4800E, do a set of the same variable with "logout". This will stop traps being sent to your station. MultiModemManager does this automatically.

3.5 Command Line Interface

The MR4800E provides a complete command line interface so that you can do most of your management functions through either the MR4800E diagnostic serial connector or (more likely) by using Telnet. When first setting up your MR4800E you must use the MR4800E diagnostic serial connector to set up the system's TCP/IP information (such as it's IP address, Default Gateway IP address, etc., as specified in the MR4800E Quick Start in Chapter 2).

When you first come up, either in Telnet or by using the serial port, you will be prompted for a user id and password. Enter in the correct user id and password for the desired security level (see above for a description of the security levels). Once logged in, the screen should show the following information.

```
Welcome to MultiModemManager MR4800E

version E-1.02 (OCT 24 1996 18:06:37) 10/29/1996 3:14pm

Press any key to start system manually...starting............done

Username: supervisor

Password  *********
```

[0] A:\

The command line prompt is the current directory followed by a '#' character. There are two drives formatted on the MR4800E, A and B, and you can switch between them by using the CD command or by typing A: or B:. A standard set of DOS and UNIX file system commands are available, albeit in limited fashion (no wildcards are supported, etc.). See Chapter 4 for the command reference to see how each of the commands are supported.

There are commands that allow you to monitor activity on the modems in the rack. The commands GETMODEMS, GETCALLS, and GETFAULTS allow you to see the current state of the modems, the connection history of the modems and the history of faults on the modems, respectively.

Information that is displayed which goes beyond the size of the screen, will be output a page at a time using a "--MORE--" prompt. When you get this prompt, you have the option of quitting the list by typing "Q" or continuing the list by typing anything else.

There are commands that allow you to change the current state of the modems. With the commands OOSSET, OOSCLEAR, RESET, CONFIG, you can set modems in or out of service; reset them or configure them, respectively.

LOGOUT should be used when you are done using the command line interface so that the MR4800E is left in a secure state.

See Chapter 4 for a complete list of the commands that are available for use.

3.6 Telnet Interface

Telnet is an Internet standard protocol that allows the remote login between two systems connected to a TCP/IP network (such as the Internet). The MR4800E can be managed remotely by using Telnet. Telnet will give the user access to all management functions through the command line interface.

There is an inactivity timer associated with the Telnet session. If there is no activity for 10 minutes, then the Telnet session will close.

3.7 Web Browser Interface

The MR4800E can be monitored/controlled from a Web browser such as Netscape Navigator version 2.0 or later or Microsoft Internet Explorer version 3.0 or later.

There are two main interfaces available: a HTML framed interface (where the browser screen is split into Frames holding different information) and a Non-Framed interface. To get to the framed interface type in the following URL in your browser's URL entry line and hit enter.

> http://111.222.333.444/mmm/main.html

For the Non-Framed interface, use the following URL:

> http://111.222.333.444/mmm/standard.html

where 111.222.333.444 is your card's IP address.

3.7.1 Logging In

Whenever you access the MR4800E for first time during a browser session (since the browser program was run), you will be prompted for a user ID and password. You must login as someone of operator level of security or higher to get access to the Web interface.

Once logged in both interfaces present the users with a list of available views (Framed or Standard), a list of operations, and a list of information views. These are all available via HTML hot-links.

3.7.2 Getting Modem Information

In each interface the same information is available in table format. There are tables of information about modems, calls on modems, modem faults and system faults, and system version. In the framed version these tables appear in each of the frames, in the non-framed version each of the tables appear on a separate HTML page.

3.7.3 Controlling Modems

In each interface, the user can also reset modems, set in/out-of service modems, and configure modems. When the user selects the hot-link for that operation, they are presented with a form where they enter (in list format - e.g., 1A:3C,15B) which modems are to have the desired operation performed on them. After entering this list, the operation is performed when the user selects the "action" button (e.g., Config if the user is configuring modems).

3.7.4 Web Interface Limitations

The Web interface does not provide the full management interface at this point (full management is provide either through our MultiModemManager software, or through the use of a 3rd Party SNMP manager). Once the system is set up though, most management can be done using the Web Browser interface.

3.8 FTP Interface

FTP (File Transfer Protocol) is an Internet standard protocol that allows the transfer of files between two systems connected to a TCP/IP network (such as the Internet). The MR4800E acts as an FTP server so that FTP clients can send/receive files from it.

FTP is necessary so that you can transfer configuration files (*.cfg) to/from your system. If you plan to use MultiModemManager security you will need to transfer security files (*.db) to/from your system. If you wish to analyze event information, you will need to transfer event files (*.hr) from the MR4800E to your system where you can run the Statistical Analyzer on them.

Note: When logging in, you must use the Supervisor user name and password.

3.9 PPP Interface

PPP (Point-to-Point Protocol) is an Internet standard protocol that allows TCP/IP connections over a serial data link. The 9-pin serial connector on the front of the MR4800E is for a PPP connection to the MR4800E.

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Chapter 4 - Commands

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4.1 Parameter Descriptions

Here is a description of the parameters used in the command descriptions that follow.

Pathname

Description: A DOS style pathname. A partial path assumes the current directory.

Example:

> **a:\mmm\mr4800.ini**, shows a full pathname

Example:

> **mr4800.ini**, shows a partial pathname

This partial pathname is the same as **a:\mmm\mr4800.ini** if the current working directory is **a:\mmm**.

Device

Description: A list of modems separated by commas. An inclusive list may also be used.

Example:

> 1A,2A:3A,4C comprises the modems (1A,2A,2B,2C,3A, and 4C)

Note: Spaces are not allowed in the modem list.

IP Address

Description: A string of four numbers (up to 3 digits) separated by periods.

Example:

> 192.168.4..25

IP Address Mask

Description: An IP Address Mask is used to define a set or range of IP Addresses. It may contain components of 255 or 0.

Example:

> 255.255.255.0

4.2 Commands Listed by Function

In this section, the commands are listed alphabetically by function. The functions are: Display, Environment, File, Modem Control, and Security.

See Section 4.4 (Command Reference) for expanded descriptions of the commands.

Display

Command Name	Parameters	Description
getcalls	Device	Displays call traffic for the device
getfaults	Device	Displays faults for the device
getmodems	Device	Displays the current status for the device

Environment

Command Name	Parameters	Description
cl, clock	None	Displays current date and time
date	None	Prompts you for current date
getgateway	None	Display the configured gateway address
getip	None	Display the configured IP address
getreadcommunity	None	Displays the Read community settings
getsendtrap	None	Displays whether traps are being sent or not.
getsubnet	None	Display the configured subnet mask
gettrap	None	Display the configured trap address
getwritecommunity	None	Displays the Write community settings
setgateway	IP Address	Configure the gateway address
setip	IP Address	Configure the IP address
setreadcommunity	None	Change the Read community settings
setsendtrap	On/Off	Changes the status of sending traps.
setsubnet	IP Address Mask	Configure the subnet mask
settrap	IP Address	Configured the trap address
setwritecommunity	None	Change the Write community settings
time	None	Prompts you for current time

File

Command Name	Parameters	Description
cat	Pathname	Display the contents of an ASCII text file
cd, chdir	Pathname	Change to the specified directory
copy, cp	Pathname1 & Pathname2	Copy a file from Pathname1 to Pathname2
del, delete	Pathname	Delete a file
dir	Pathname	Display the contents of a directory
download	Pathname	Download a file from the MR4800E controller
ls	Pathname	Display the contents of a directory
md, mkdir	Pathname	Make directory
rd, remdir	Pathname	Remove directory
ren, rename	Pathname	Rename a file
rendir	Pathname	Rename a directory
rm	Pathname	Delete a file
type	Pathname	Display the contents of an ASCII text file
upload	Pathname	Upload a file to the MR4800E.

Modem Control

Command Name	Parameters	Description
cfg, configure	Device	Configure the specified device with the configuration file associated (via SNMP) with that device
getfkey1-getfkey4	None	Displays the current value for the function keys used when on-line with a device
oc, oosclear	Device	Set the device at specified device In Service
online	Device	Go on-line with a device to check or set configuration information
oosset, os	Device	Set the specified device Out Of Service
reset, rs	Device	Reset the specified device
setconfig	Pathname & Device	Associates a configuration file with a device
setfkey1-setfkey4	Command String	Configures the current function key values for use when on-line with a device

Security

Command Name	Parameters	Description
lo, logout	None	Logs you off of the system so next user has to login to get access
passwd, password	None	Will prompt you for old, new, and new pass word
security	None	Allows the modification of a subordinate security levels username and password
userid	None	Will prompt you for old, new, and new user id
whoami	None	Tells you what user is currently logged in

System

Command Name	Parameters	Description
boot	None	Reboot MR4800E
history	None	Display command history buffer
readme	None	Display information about most recent changes to firmware

4.3 Commands Listed by Security Level

In this section, the commands are listed by security level. The security levels are: Guest, Operator, and Supervisor.

See Section 4.4 (Command Reference) for expanded descriptions of the commands.

Guest

Command Name	Parameters	Description
cat	Pathname	Display the contents of an ASCII text file
cd, chdir	Pathname	Change to the specified directory
cl, clock	None	Displays current date and time
dir	Pathname	Display the contents of a directory
getgateway	None	Display the configured gateway address
getip	None	Display the configured IP address
getsendtrap	None	Displays whether traps are being sent or not.
getsubnet	None	Display the configured subnet mask
gettrap	None	Display the configured trap address
history	None	Display command history buffer
logout, lo	None	Logs you off of the system so next user has to login to get access.
ls	Pathname	Display the contents of a directory
passwd, password	None	Will prompt you for old, new, and new pass word
security	None	Allows the modification of a subordinate security levels username and password
type	Pathname	Display the contents of an ASCII text file
userid	None	Will prompt you for old, new, and new user id
whoami	None	Tells you what user is currently logged in

Operator

Command Name	Parameters	Description
cfg, configure	Device	Configure the specified device with the configuration file associated (via SNMP) with that device
copy, cp	Pathname1 & Pathname2	Copy a file from Pathname1 to Pathname2
date, d	None	Prompts you for current date
getcalls	Device	Displays call traffic for the device
getfaults	Device	Displays faults for the device
getfkey1-	None	Displays the current value for the function

 Operator (cont.)

Command Name	Parameters	Description
getfkey4	None	keys used when on-line with a device
getmodems	Device	Displays the current status for the device
oc, oosclear	Device	Set the device at specified device In Service
oosset, os	Device	Set the specified device Out Of Service
readme	None	Display information about most recent changes to firmware
reset, rs	Device	Reset the specified device
setconfig	Pathname & Device	Associates a configuration file with a device
setfkey1-	Command	Configures the current function key values for
setfkey4	String	use when on-line with a device
time	None	Prompts you for current time

Supervisor

Command Name	Parameters	Description
boot	None	Reboot MR4800E
del, delete	Pathname	Delete a file
download	Pathname	Download a file from the MR4800E controller
getreadcommunity	None	Displays the Read community settings
getwritecommunity	None	Displays the Write community settings
md, mkdir	Pathname	Make directory
rd, remdir	Pathname	Remove directory
ren, rename	Pathname	Rename a file
rendir	Pathname	Rename a directory
rm	Pathname	Delete a file
setgateway	IP Address	Configure the gateway address
setip	IP Address	Configure the IP address
setreadcommunity	None	Change the Read community settings
setsendtrap	On/Off	Changes the status of sending traps.
setsubnet	IP Address Mask	Configure the subnet mask
settrap	IP Address	Configured the trap address
setwritecommunity	None	Change the Write community settings
upload	Pathname	Upload a file to the MR4800E.

4.4 Command Reference

This section has all the commands listed alphabetically with an expanded explanation.

See Section 4.1 for a description of the parameters.

?

Parameters: *None*

Description: Displays an alphabetical list of the available commands.

Security: Guest

!!

Parameters: None

Description: Repeats the last command that has been saved in the history buffer. The command that is executed is then placed into the history at the current command index. A list of the previously executed commands can be printed by looking at the command history. See *history*.

Security: Guest

Example:

```
[0] A:\ # clock
10/29/1996 1:20pm
[1] A:\ # !!
10/29/1996 1:20pm
```

!n

Parameters: command history index.

Description: Repeats the command whose index is indicated by the parameter. The command index is the number shown in the prompt when the command is executed. The command that is executed is then placed into the history at the current command index. A list of the previously executed commands can be printed by looking at the command history. See *history*.

Security: Guest

Example:

```
[0] A:\ # clock
10/29/1996 1:20pm
[1] A:\ # ver
Version E-1.02 (Oct 24 1996 18:06:37)
[2] A:\ # !0
10/29/1996 1:20pm
```

!a

Parameters: The letter (or letters) of the command to search for.

Description: Repeats the command whose beginning letter (or letters) is (are) indicated by the parameter. The command that is executed is then placed into the history at the current command index. A list of the previously executed commands can be printed by looking at the command history. See *history*.

Security: Guest

Example:

```
[0] A:\ # clock
10/29/1996 1:20pm
[1] A:\ # ver
Version E-1.02 (Oct 24 1996 18:06:37)
[2] A:\ # !cl
10/29/1996 1:20pm
```

boot

Parameters: None

Description: Re-boots the system by performing a reset of the MR4800E controller card. A prompt is displayed confirming your desire to re-boot the system. If you wish to re-boot the system, enter 'y'. Any other key will halt the re-boot operation.

Security: Supervisor

Example:

```
[0] A:\ # boot
Are you sure you wish to reboot the controller card?
(y/n)
```

cat

Parameters: *Pathname*

Description: Displays the contents of an ASCII text file. The cat command will display the contents of the ASCII file referred to by pathname to the screen.

Security: Guest

Limitations: The cat command is more similar to the DOS TYPE command than it is to the UNIX cat command.

Example:

```
[0] A:\MMM # cat mr4800.ini
[SecurityFile]
NumberOfFile = 1
1 = mr4800.db
[SecurityConfig]
UseridPrompt = ^m^jUserid:
PasswordPrompt = ^m^jPassword:
WelcomeMsg = ^m^jConnected to MultiModemManager System:^m^j
...
```

cd, chdir

Parameters: Pathname

Description: Change to the specified directory. The cd command sets the current working directory to *Pathname*.

Security: Guest

Example:

```
[0] A:\ # cd mmm
[1] A:\MMM #
```

cfg, configure

Parameters: *Device*

Description: Configure the specified device with the configuration file associated (via SNMP) with that device. The cfg command causes the configuration file associated with the modems specified by *Device* to be sent. If the modem is connected the config commands will be ignored.

Security: Guest

Example:

```
[0] A:\MMM # cfg 1a,2a:2c
[1] A:\MMM #
```

chdir

See *cd.*

cl, clock

Parameters: *None*

Description: Displays current date and time (24 hour clock).

Security: Guest

Limitations: The time does not change automatically with daylight savings time.
Example:
```
[0] A:\MMM # cl
10/29/96 1:20pm
[1] A:\MMM #
```

configure

See *cfg.*

copy, cp

Parameters: *Pathname1 & Pathname2*

Description: Copy a file from Pathname1 to Pathname2. Copy the file indicated by Pathname1 to the file indicated by Pathname2. If Pathname2 exists, it is destroyed.

Security: Operator

Example:

```
[0] A:\MMM # copy mr4800.ini mr4800.old
[1] A:\MMM #
```

d, date

Parameters: *None*

Description: Prompts you for current date. The date command allows you to set the date for the MR4800E.

Security: Operator

Example:

[0] A:\MMM # **d**

The current date is: 5/15/1996

Enter the new date: mm/dd/yyyy **10/29/96**

[1] A:\MMM # **cl**

10/29/96 1:37pm

del, delete, rm

Parameters: *Pathname*

Description: Delete a file. Delete the file indicated by the pathname. The file is destroyed permanently and can not be recovered.

Security: Supervisor

Example:

[0] A:\MMM # **del mr4800.old**

[1] A:\MMM #

dir, ls

Parameters: *Pathname*

Description: Display the contents of a directory. The dir command will list the files of the directory indicated by pathname, file size, and bytes left on the drive.

Note:The output of the ls command is more similar to the DOS DIR command than the UNIX ls command.

Security: Guest

Limitations: The dir command can only list the files of the current working directory.

Example:

```
[0] A:\MMM # dir


The current directory is 'A:\MMM'


..      <DIR>
...     <DIR>
MR4800.INI    965
MR4800.GP     4155
MR4800.CNF    12221
MR4800.INV    3812
MR4800.DB     792
DEFAULT.CFG   0
MR4800.SAV    192
MR.LOG <DIR>
7 file(s) 22137 bytes
3 dirs(s) 1015296 bytes free
[1] A:\MMM #
```

download

Parameters: *Pathname*

Description: Download a file from the MR4800E. The download command will allow you to move files off of the MR4800E to another location. The files are output as the hexadecimal values surrounded by square brackets.

Note: Files will normally be transferred off of the system using FTP.

Security: Supervisor

Limitations: This does not respond to flow control.

Example:

```
[0] A:\MMM # download mr4800.old
[5b][46][61][75][6c][74][41][6c][61][72][6d][73][5d][0d][0a][43]
[61][72][64][20][49][6e][73][74][61][6c][6c][65][64][20][3d][20]
[4f][4e][2c][30][2c][4e][4f][4e][45][0d][0a][43][61][72][64][20]
[52][65][6d][6f][76][65][64][20][3d][20][4f][4e][2c][30][2c][4e]
[4f][4e][45][0d][0a][50][6f][77][65][72][20][53][75][70][70][6c]
[79][20][46][61][69][6c][75][72][65][20][3d][20][4f][4e][2c][30]
[2c][4e][4f][4e][45][0d][0a][44][69][73][63][6f][6e][6e][65][63]
[74][3a][20][50][6f][77][65][72][4f][6e][20][6f][72][20][57][61]
[74][63][68][44][6f][67][20][3d][20][4f][4e][2c][30][2c][4f][4f]
...
[1] A:\MMM #
```

getcalls

Parameters: *Device*

Description: Displays call traffic for *Device*. If there is no parameter, call traffic is listed for every installed modem.

Security: Supervisor

Example:

[0] A:\ #

[1] A:\ # **getcalls**

Modem	DateTime	Connect Info.	Call Duration	User ID	Phone Number
1A	No Calls				
1B	No Calls				
1C	05-21 08:15:02	A-33600-v.42bis	000-00:00:08		
1C	05-21 08:15:41	A-33600-v.42bis	000-00:00:08		
1C	05-21 08:32:58	A-33600-v.42bis	000-00:00:09		
2A	05-21 08:13:48	O-33600-v.42bis	000-00:00:08		DT13
2A	05-21 08:14:26	O-33600-v.42bis	000-00:00:09		DT13
2A	05-21 08:15:02	O-33600-v.42bis	000-00:00:08		DT13
2A	05-21 08:16:20	O-33600-v.42bis	000-00:00:08		DT13
2A	05-21 08:33:02	Originate	Open Call		DT13
2B	05-21 08:13:47	O-33600-v.42bis	000-00:00:08		DT16

...

[2] A:\ #

getfaults

Parameters: *Device.* If there is no parameter, then system faults are listed.

Description: Displays faults for *Device.* If there is no parameter, faults are listed for every installed modem.

Security: Operator

Example:

```
[0] A:\  # getfaults

Modem  Date   Time   Fault Description


1      06-05  10:18:51     Rack Online

       06-05  10:19:17      Remote management session initiated

11     06-05  10:19:26     Modem card Removed

7      06-05  10:19:31     Modem card Removed

8      06-05  10:19:46     Modem card Installed


[1] A:\ #
[2] A:\ # getfaults 3a:3c

3A                 No fault/status found

3B     05-21  08:27:1      Modem reset by rack controller card

3C                 No fault/status found
[3] A:\ #
```

getfkey1, getfkey2, getfkey3, getfkey4

Parameters: *None*

Description: Displays the current configure values for the on-line function keys. These function keys are available for use when one is on-line with a modem. See online.

Security: Operator

Example:

```
[0] A:\ # getfkey1
Function Key 1: 'ATL5'
[1] A:\ # getfkey2
Function Key 2: 'ATL6'
[2] A:\ # getfkey3
Function Key 3: 'ATL5L6L7'
[3] A:\ # getfkey4
Function Key 4: 'ATI1I2I3I4'
```

getgateway

Parameters: *None*

Description: Displays the configured gateway address. The getgateway command displays the default gateway IP address (if one is set) for the MR4800E.

Security: Guest

Example:

```
[0] A:\MMM # getgateway
Gateway IP Address = 199.199.99.1
[1] A:\MMM #
```

getip

Parameters: *None*

Description: Displays the configured IP address.   The getip command displays the IP address of the MR4800E.

Security: Guest

Example:

```
[0] A:\MMM # getip
IP Address = 199.199.99.9
[1] A:\MMM #
```

getmodems

Parameters: *Device*

Description: Displays the current status for the modems indicated by *Device*. If there is no parameter, current status is listed for every installed modem.

Security: Operator

Example:

```
[0] A:\ # getmodems
Modem  Current StateConfig Filename     Modem Group Name    Modem Inventory


1A     Idle   default.cfg  Group1 Dial Up No Security
1B     Idle   default.cfg  Group1 Dial Up No Security
1C     Idle   default.cfg  Group1 Dial Up No Security
2A     Idle   default.cfg  Group1 Dial Up Call In Security
2B     Dial   default.cfg  Group1 Dial Up Call In Security
2C     Ring   default.cfg  Group1 Dial Up Call In Security
3A     Dial   default.cfg  Group1 Dial Up Callback Security
3B     Ring   default.cfg  Group1 Dial Up Callback Security
3C     Idle   default.cfg  Unassigned   Dial Up Callback Security
4A     Idle   default.cfg  Group1 Dial Up No Security
4B     Idle   default.cfg  Unassigned   Dial Up No Security
4C     Idle   default.cfg  Group1 Dial Up No Security
[1] A:\ #
[2] A:\ # getmodems 4a:5c
4A     Idle   default.cfg  Group1 Dial Up No Security
4B     Idle   default.cfg  Unassigned   Dial Up No Security
4C     Idle   default.cfg  Group1 Dial Up No Security
5A     Not Present  default.cfg  Unassigned   Dial Up No Security
5B     Not Present  default.cfg  Unassigned   Dial Up No Security
5C     Not Present  default.cfg  Unassigned   Dial Up No Security

[3] A:\ #
```

getreadcommunity

Parameters: *None*

Description: Displays the Read community settings.

Security: Supervisor

Example:

```
[0] A:\MMM # getreadcommunity
Read community = public
Enter SETREADCOMMUNITY <community-string> to change it.
[1] A:\ #
```

getsendtrap

Parameters: *None*

Description: Displays whether traps are being sent from the MR4800E or not. See *setsendtrap*.

Security: Guest

Example:

```
[0] A:\ # getsendtrap
The sending of traps is enabled.
[1] A:\ # setsendtrap off
The sending of traps has been successfully disabled.
[2] A:\ # getsendtrap
The sending of traps is disabled.
```

getsubnet

Parameters: *None*

Description: Displays the configured subnet mask. The getsubnet command displays the subnet mask for the MR4800E.

Security: Guest

Example:

```
[0] A:\MMM # getsubnet
Subnet mask = 255.255.255.0
[1] A:\MMM #
```

gettrap

Parameters: *None*

Description: Display the configured trap address. The gettrap command displays the default trap IP address (if one is set) for the MR4800E. This is the address to which the MR4800E generated traps (i.e. fault/status traps) are sent.

Security: Guest

Example:

```
[0] A:\MMM # gettrap
Trap IP Address = 199.199.99.91
[1] A:\MMM #
```

getwritecommunity

Parameters: *None*

Description: Displays the Write community settings.

Security: Supervisor

Example:

```
[0] A:\MMM # getwritecommunity
Write community = public
Enter SETWRITECOMMUNITY <community-string> to change it.
[1] A:\MMM #
```

history

Parameters: *None*

Description: Displays the command history buffer.

Security: Guest

Example:

```
[4] A:\ # history
        0  VER
        1  CLOCK
        2  VER
        3  CLOCK
        4  HISTORY
[5] A:\ #
```

lo, logout

Parameters: *None*

Description: Logs you off of the system so next user has to login to get access. The logout command ends the session for the previous user, and places the monitor at the userid prompt.

Security: Guest

Example:

```
[0] A:\MMM # lo
Bye.
UserName:
```

ls

See *dir.*

md, mkdir

Parameters: *Pathname*

Description: Make directory. The md command will create a subdirectory in the directory indicated by the pathname.

Security: Supervisor

Example:

```
[0] A:\MMM # md mr.log
[1] A:\MMM # cd mr.log
[2] A:\MMM\MR.LOG #
```

oc, oosclear, oosclr

Parameters: *Device*

Description: Set the specified device In Service. The oc command will clear the Out Of Service flag in the MR4800E for the modem(s) indicated by *Device*.

Security: Operator

Limitations: There is no effect if the Out Of Service flag is not set for the modem(s).

Example:

```
[0] A:\MMM # oc 1a
[1] A:\MMM #
```

online

Parameters: *Device*

Description: Goes on-line with a device to check configuration information and firmware version information. This is not meant to be a fully functional terminal. But is available to set and check configuration information.

Security: Operator

Example:

```
[0] A:\ # online 6a:6c
==== Online with device: Slot 06 Device A        ====
==== type "<esc> and ?" to display help information ====
<esc>?
+--------------------------------------+
! <esc> again to exit terminal mode    !
! b      to move back in device list   !
! c      to clear the screen           !
! n      to move forward in device list !
! 1      send stored command 1 to device !
! 2      send stored command 2 to device !
! 3      send stored command 3 to device !
! 4      send stored command 4 to device !
! ?      to display this help menu      !
+--------------------------------------+
atl5
B1 E1 M1 Q0 R0 V1 X4 &E1 &E4 &E6 &E8 &E10 &E13 &E15 %C0 #C1 *C0 &C1 *H0
$MB33600 $SB115200 $BA0 &W1
OK
<esc>n
==== Current device is: Slot 6 Device B ====
atl5
B1 E1 M1 Q0 R0 V1 X4 &E1 &E4 &E6 &E8 &E10 &E13 &E15 %C0 #C1 *C0
&C1 *H0

$MB28800 $SB57600 $BA0 &W1
OK
<esc>n
==== At end of list: Slot 6 Device C ====
atl5
B1 E1 M1 Q0 R0 V1 X4 &E1 &E4 &E6 &E8 &E10 &E13 &E15 %C0 #C1 *C0
&C1 *H0
$MB28800 $SB57600 $BA0 &W1
OK
<esc>b
==== Current device is: Slot 6 Device B ====
<esc><esc>
Goodbye!
[1] A:\ #
```

oosset, os

Parameters: *Device*

Description: Set the specified device Out of Service. The os command will set the Out Of Service flag in the MR4800E for the modem(s) indicated by *Device*.

Security: Operator

Limitations: If the modem(s) are connected, they will remain off hook when the call is completed.

Example:

```
[0] A:\MMM # os 1a
[1] A:\MMM #
```

passwd, password

Parameters: *None*

Description: Will prompt you for old, new, and new password. The passwd command will allow you to change your password by prompting you for the current password and new password.

Security: Guest

Example:

```
[0] A:\MMM # passwd


Current password: *****
New password: *****
Repeat new password: *****
Security information updated
[1] A:\MMM #
```

readme

Parameters: *None*

Description: Displays a summary listing of the most recent modifications made to the firmware for the MR4800E.

Security: Operator

Example:

```
[0] A:\ # readme
MR4800E version 1.02 release information
-- 1. Web Server functionality --------
. . .
-- 2. MR4800E MIB --------
. . .
-- 3. Known Limitations --------
. . .
[1] A:\ #
```

rd, remdir

Parameters: *Pathname*

Description: Remove directory. The rd command will delete the directory indicated by the pathname.

Security: Supervisor

Limitations: The directory must be empty before rd will successfully delete it. You are not given the option of deleting a directory and it's subdirectories.

Example:

```
[0] A:\MMM # rd mr.log
[1] A:\MMM #
```

ren, rename

Parameters: *Pathname Pathname*

Description: Rename a file. The ren command will change the name of the file indicated by pathname.

Security: Supervisor

Example:

```
[0] A:\ # ren temp.txt temp1.txt
[1] A:\ #
```

rendir

Parameters: *Pathname*

Description: Rename a directory. The rendir command will change the name of the directory indicated by the pathname.

Security: Supervisor

Example:

```
[0] A:\ # rendir MMM MMM1
[1] A:\ #
```

reset, rs

Parameters: *Device*

Description: Reset the specified device. The reset command will cause the modem(s) indicated by the device to cycle power. This will cause any modem(s) that are connected to disconnect.

Security: Operator

Example:

```
[0] A:\ # reset 1a
[1] A:\ #
```

rm

See del.

rs

See reset.

se, setenviron

Parameters: *None*

Description: Change the environment values for the MR4800E. The se command allows you to check or change the environment values for the MR4800E. The IP Address, default Trap IP, Gateway IP, Subnet Mask, and community strings may be changed.

Security:Supervisor

Example:

```
[0] A:\MMM # se
MultiModemManager MR4800E Environment setup
Use '-' to back up to the previous command.
The default value is in angle brackets <>.

The current time is: 11:04pm
Enter the new time: <cr>¹
The current date is: 10/30/1996
Enter the new date: mm/dd/yy <cr>¹

Enter MR4800E IP Address <199.199.99.9>: <cr>¹
Enter Default Trap IP Address <199.199.99.91>: <cr>¹
Enter Gateway IP Address <0.0.0.0>: <cr>¹
Enter Subnet Mask <255.255.255.0>: -²

Enter Gateway IP Address <0.0.0.0> : <cr>¹
Enter Subnet Mask <255.255.255.0> : <cr>¹
Enter read community string <public> : <cr>¹
Enter write community string <public> : <cr>¹

IP Address = 192.168.4.44
Trap IP Address = 192.168.4.6
No gateway IP address is currently stored.
Subnet mask = 255.255.255.0
Read community = public
Write community = public

Enter SETENVIRON to change these settings

[1] A:\MMM #
```

Foot Notes:

[1]   Press Enter (<cr>) to accept the current value.

[2]   Press hyphen (-) to go back to the previous command.

[3]   Entered an invalid IP Address.

security

Parameters: *None*

Description: Allows the modification of a subordinate security levels username and password. The security command allows you to change the user id and password for any security levels lower than yours.

Security: Supervisor

Example:

```
[0] A:\MMM # security

Modify security information for which security level:


1. Guest level

2. Operator level

3. Supervisor level


Which one? 1

Enter User ID : guest

Enter new password : *****

Repeat new password : *****

Security information updated


[1] A:\MMM #
```

setconfig

Parameters: Pathname & Device

Description: Associates a configuration file with a particular device.

Security: Operator

Example:

```
[0] A:\ # getmodems

2A  Idle          default.cfg  Unassigned  Dial Up No Security

2B  Idle          default.cfg  Unassigned  Dial Up No Security

2C  Idle          default.cfg  Unassigned  Dial Up No Security

4A  Idle          default.cfg  Unassigned  Dial Up No Security

4B  Idle          default.cfg  Unassigned  Dial Up No Security

4C  Idle          default.cfg  Unassigned  Dial Up No Security

[1] A:\ # setconfig unix.cfg 2a:2c

[2] A:\ # setconfig rsa.cfg 4a:4c

[3] A:\ # getmodems

2A  Idle          unix.cfg     Unassigned  Dial Up No Security

2B  Idle          unix.cfg     Unassigned  Dial Up No Security

2C  Idle          unix.cfg     Unassigned  Dial Up No Security

4A  Idle          rsa.cfg      Unassigned  Dial Up No Security

4B Idle           rsa.cfg      Unassigned  Dial Up No Security

4C  Idle          rsa.cfg      Unassigned  Dial Up No Security
```

setfkey1, setfkey2, setfkey3, setfkey4

Parameters: Command String

Description: Configures the current values for the on-line function keys. These function keys are available for use when one is on-line with a modem. See *online*.

Security: Operator

Example:

```
[0] A:\ # getfkey1
Function Key 1: "ATL5"
[1] A:\ # setfkey1 ATL5L6L7
Function Key 1: "ATL5L6L7"
[2] A:\ # getfkey1
Function Key 1: "ATL5L6L7"
```

setgateway

Parameters: *IP Address*

Description: Configure the gateway address. The setgateway command allows you to change the default gateway address to the IP Address parameter. *See se.*

Security: Supervisor

Example:

```
    [0] A:\ # setgateway 199.199.199.191
    Gateway IP Address 199.199.199.191 stored
    [1] A:\ #
```

setip

Parameters: *IP Address*

Description: Configure the IP address. The setip command allows you to change the IP address of the MR4800E to the IP Address parameter. See *se.*

Security: Supervisor

Example:

```
    [0] A:\ # setip 199.199.199.44
    IP Address 199.199.199.44 stored
    [1] A:\ #
```

setreadcommunity

Parameters: *None*

Description: Change the Read community settings.

Security: Supervisor

Example:

```
    [0] A:\ # setreadcommunity public
    Read Community public stored
    [1] A:\ #
```

setsendtrap

Parameters: on, off

Description: Configure the MR4800E controller card to send traps or not. This command can be used to disable the sending of traps from a controller card to a SNMP manager or MultiModemManager console.

Security: Supervisor

Example:

```
[0] A:\ # getsendtrap
The sending of traps is enabled.
```

[1] A:\ # **setsendtrap off**

The sending of traps has been successfully disabled.

[2] A:\ # **getsendtrap**

The sending of traps is disabled.

setsubnet

Parameters: *IP Address Mask*

Description: Configure the subnet mask. The setsubnet command allows you to change the subnet mask to the IP Address parameter. See *se.*

Security: Supervisor

Example:

```
[0] A:\ # setsubnet 255.255.255.0
Subnet mask 255.255.255.0 stored
[1] A:\ #
```

settrap

Parameters: *IP Address*

Description: Configure the trap address. The settrap command allows you to change the default trap IP Address to the IP Address parameter. This IP is where fault/status traps are sent. See *se.*

Security: Supervisor

Limitations: Only one default trap address may be set at one time.

Example:

```
[0] A:\ # settrap 199.199.199.6


Trap IP Address 199.199.199.6 stored
[1] A:\ #
```

setwritecommunity

Parameters: *None*

Description: Change the Write community settings.

Security: Supervisor

Example:

```
[0] A:\ # setwritecommunity public
Write Community public stored
[1] A:\ #
```

t, time

Parameters: *None*

Description: Prompts you for current time. The time command allows you to change the MR4800E time.

Security: Operator

Limitations: The time is not corrected for daylight savings time.

Example:

```
[0] A:\MMM # t
The current time is: 4:59pm
Enter the new time: hh:mm 17:10
[1] A:\MMM # cl
10/30/1996 5:10pm
[2] A:\MMM # t
The current time is: 5:10pm
Enter the new time: hh:mm 5:12pm
[3] A:\MMM # cl
10/30/1996 5:12pm
```

type

See cat.

update

Parameters: [Pathname {Device}]

Description: Updates the controller and modem firmware. The update command allows you to flash firmware into both the controller and the modems. Controller firmware must end with a .HXC extension. Modem firmware must end with a .HEX extension. The firmware files must reside on the A:\ or B:\ drives of the controller. Update by itself views modem progress.

Note: Files will normally be transferred to the system using FTP.

Security: Supervisor

Limitations: Controller firmware must be stored on the B:\ drive because of the file size.

Example:

```
[3] update 28mr114.hex  2a:2c
Update  Started
[4] A:\MMM # update
 Percent Done = 59%
2a    Updating
2b    Updating
2c    Updating
[14] B:\MMM # update rel312.hxc
Percent Done = 68%
```

upload

Parameters: *Pathname*

Description: Upload a file to the MR4800E. The upload command allows you to move a file onto the MR4800E. Binary files can be uploaded by first converting them to ASCII on the host system. The format for the data is one or more lines of hexadecimal data up to 80 characters in length, where each hexadecimal value is surrounded by a left and right square bracket (e.g., [2b][3c]...[1c]). When the file is done being uploaded, press Esc or Ctrl-D to complete the upload.

Note: *Files will normally be transferred to the system using FTP.*

Security: Supervisor

Limitations: Only ASCII files can be uploaded. This command does not support flow control, so the files should be uploaded using an ASCII file transfer with a 1 millisecond delay between lines.

Example:

```
[0] A:\MMM # upload mr4800.db
...data uploaded here...
2192 byte(s) written to 'mr4800.db'


[1] A:\MMM #
```

userid

Parameters:*None*

Description: Will prompt you for old, new, and new user id. The userid command allows you to change your userid by prompting you for your current and new userid.

Security: Guest

Example:

```
[0] A:\MMM # userid
Current user id: super
New user id: supervisor
Security information updated


[1] A:\MMM #
```

ver, version

Parameters: *None*

Description: Display the current version of the MR4800E.

Security: Guest

Example:

```
[0] A:\MMM # ver
Version E-1.02 (Oct 24 1996 18:06:37)
[1] A:\MMM #
```

whoami

Parameters: *None*

Description: Tells you what user is currently logged in. The whoami command displays the user logged on, and his/her security level.

Security: Guest

Example:

```
[0] A:\MMM # whoami
supervisor with < supervisor> access rights
[1] A:\MMM #
```

4.5   Error Messages

When you receive an error message when executing a command be sure to check the command spelling. Do you have access rights to the command? Do you have the correct number of parameters in the correct format?

ERROR: Illegal command

Possible Cause:

The command may be spelled wrong, or you have the wrong number or incorrect parameters.

ERROR: Invalid IP address, format ###.###.###.###

Possible Cause:

The IP address is not 4 groups of up to 3 digits separated by a period. The IP Address has no components with a value greater than 255.

ERROR: Invalid user id — user id not changed

Possible Cause:

The user id contains an invalid character.

ERROR: Unable to perform command

Possible Cause:

User does not have the security access to execute the command.

ERROR: Make directory 'DIRNAME' failed.

Possible Cause:

The subdirectory 'DIRNAME' already exists.

ERROR: Unable to rename 'DIR1' to 'DIR2'

Possible Cause:

DIR1 does not exist, or you are attempting to rename the current working directory.

ERROR: Online session already exists

Possible Cause:

The ONLINE command is active by either a Telnet session or terminal attached to CC4800.

ERROR: No history is being maintained

Possible Cause:

The command history buffer is empty or not being maintained by the command line interface.

ERROR: Password not changed

Possible Cause:

The old password does not match the stored password; the new password is invalid; or the new password and the repeated new password do not match.

ERROR: Unknown error

Possible Cause:

While attempting to parse a command line an error of unknown origin occurred.

ERROR: Bad or missing configuration file

Possible Cause:

The specified configuration file is not present on the system. It is possible that the file name is incorrectly spelled.

ERROR: Invalid number

Possible Cause:

The specified number is not a valid hex number starting with a '$' or a valid decimal number starting with a digit.

ERROR: Invalid device specifier

Possible Cause:

The device specifier is invalid since it is not of the format '1a', where '1' represents the slot number for the device and 'a' represents the device number. See *Parameter Descriptions*.

ERROR: Invalid drive specifier

Possible Cause:

The specified drive letter does not indicate a drive avaliable to the system.

ERROR: Security information not changed

Possible Cause:

The new user id is invalid. The new password is invalid; or the new password and the repeated new password do not match.

ERROR: Unable to update security information

Possible Cause:

The CMOS write error failed when updating the security information.

MultiModem**Manager**

Chapter 5 - Troubleshooting

MultiTech®
Systems

5.1 Introduction

This chapter provides the information needed to identify and fix problems with the MR4800E.

Problems can be observed at the MR4800E front panel (LEDs), or the dedicated management console's PC screen. In addition, problems can be found when performing the Diagnostic Tests, documented in Chapter 8 of the **Multi**Modem**Manager** Owner's Manual.

For specific **Multi**Modem troubleshooting information, refer to the **Multi**Modem Owner's Manual shipped with your **Multi**Modem. For basic Windows messages, refer to your Windows documentation or Help screens.

5.2 LED Indicators

The MR4800E front panel has the following indicators.

- MR4800E two-color LEDs (1-16)

- Ethernet status LEDs (1-4)

5.3 Front Panel Indicators

There are 16 two-color LEDs on the front panel of the MR4800E. The LEDs indicate the state of the installed modem cards in each of the CC4800 rack's 16 slots. On power up the lights go through a defined sequence of events before they act as status indicators for the modem cards. This sequence is defined below:

1. The LEDs on the right side turn red and then turn green when the right SIMM passes it's memory test.
2. The LEDs on the left side turn red and then turn green when the left SIMM passes it's memory test.
3. The LEDs stay green for about five seconds while the flash boot code waits for a handshake sequence on the diagnostic serial port.
4. If none is detected (this is normal unless the firmware is being updated through the diagnostic port) the main controller code starts running and the LEDs are turned off.
5. The LEDs are turned on and off, one at a time, red and green.
6. All LEDs turn green while the system starts up.
7. When the system has started, the LEDs reflect the status of the modem cards.

After the system has started, each LED will be in the following state based on the status of the modem card.

LED Color	Modem Card Status
Off	Card not installed
Green	Card installed and all modems are communicating with the MR4800E
Red	Card installed and none of the modems are communicating with the MR4800E
Flashing Red/Green	Card installed and one or two modems are not communicating with the MR4800E

5.4 Ethernet Status LEDs

The MR4800E front panel contains four Ethernet status LEDs. Each LED is described below.

LED	Color	Status
Link Integrity (LI)	yellow	on during good link
Collision Sense (CS)	red	on when there's a collision on Ethernet
Transmit (TX)	green	on during Ethernet transmit
Receive (RX)	green	on during Ethernet receive

5.5 MR4800E Diagnostic Tests

If you suspect that your MR4800E is not functioning properly, you may run the following diagnostic tests to test the MR4800E's hardware capabilities.

1.   Put test jumper (refer to page 2-1 of the owners manual to locate the test jumper on the controller card) into loopback position (so the two pins are shorted together). Plug the 10base-T loopback jumper into the front Ethernet connector of the MR4800E card.

2.   Use MultiExpress (or any data comm package) running at 115,200 with no flow control. Connect the COM Port associated with the data comm package to the RS-232 port on the back of the CC4800 rack.

3.   Reset the MR4800E by pressing the reset button on the front with a paper clip or power the CC4800 rack off and on.

4.   When prompted to start manually, press a key.

5.   You will be prompted to enter a username and password. Login as supervisor.

6.   Type in the command HDTEST and press Enter.

7.   You will see a menu. Proceed with testing in the following order:

   WARNING: Running options either out of order or ones not specified may cause unpredictable results.

   Test 2   Red LED's on
   Test 3   Green LED's on
   Test 4   All LED's off
   Test 5   Flash memory test
   Test 7   Ethernet loopback test

   Watch for the green Ethernet LED on left side of the Ethernet connector, it should be on solid. Numbers stopped and packets received will match.

   Test 1   Start backplane LED's on the front of the MR4800E will reflect the
            number of cards installed.
   Test a   Sets slot 1 modems to 9600 bps
   Test b   Sets slot 1 modems OOS
   Test c   Clears slot 1 modems OOS
   Test d   Resets slot 1 modems

MultiModemManager

Chapter 6 - Service, Warranty, & Tech Support

MultiTech®
Systems

6.1 Service

In the event that repair service is required, you may send your modem to our Mounds View factory in the USA. Products requiring repair and are shipped to us from outside the USA must have a Returned Materials Authorization (RMA) and shipping instructions. To return products for repair from inside the USA, no RMA is required, simply send products to us freight prepaid. Include a description of the problem, a return shipping address, and a check or purchase order for out-of-warranty repairs.

Please send products which require repairs to the following address:

<div align="center">

Multi-Tech Systems, Inc.

2205 Woodale Drive

Mounds View, MN 55112

Attn: Repair

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If you are shipping products from outside the USA, please contact our Repair Department prior to your shipment for an RMA.   You may contact us by telephone or fax at the following numbers:

Telephone: +(612) 785-3500

Fax: +(612) 785-9874

6.2 Limited Warranty

Multi-Tech Systems, Inc. ("MTS") warrants that its products will be free from defects in material or workmanship for a period of two years from the date of purchase, or if date of purchase is not provided, two years from date of shipment. MTS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

This warranty does not apply to any products which have been damaged by lightning storms, water, or power surges or which have been neglected, altered, abused, used for purposes other than the one which they were manufactured, repaired by the customer or any party without MTS's written authorization, or used in any manner inconsistent with MTS's instructions.

MTS's entire obligation under this warranty shall be limited (at MTS's option) to repair or replacement of any products which prove to be defective within the warranty period, or, at MTS's option, issuance of a refund of the purchase price. Defective products must be returned by Customer to MTS's factory transportation prepaid.

MTS WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PURCHASE PRICE FOR DEFECTIVE PRODUCTS.

6.3 The Multi-Tech BBS

For customers who do not have Internet access, Multi-Tech maintains a bulletin board system (BBS) that mirrors its FTP site. Information available from the BBS includes new product information, product upgrade files, and problem-solving tips. The phone number for the Multi-Tech BBS is (800) 392-2432 (USA and Canada) or (612) 785-3702 (international and local).

The BBS can be accessed by any asynchronous modem operating at 1200 bps to 33,600 bps at a setting of 8 bits, no parity, and 1 stop bit (8-N-1).

To log on to the Multi-Tech BBS

1.   Set your communications program to **8-N-1**.
2.   Dial our BBS at (800) 392-2432 (USA and Canada) or (612) 785-3702 (international and local).
3.   At the prompts, type your first name, last name, and password; then press ENTER. If you are a first time caller, the BBS asks if your name is spelled correctly. If you answer yes, a questionnaire appears. You must complete the questionnaire to use the BBS on your first call.
4.   Press ENTER until the Main Menu appears. From the Main Menu you have access to two areas: the Files Menu and News. For help on menu commands, type **?**.

To Download a file

If you know the file name

1.   From the Main Menu, type **F** to access the Files Menu, then type **D**.
2.   Enter the name of the file you wish to download from the BBS.
3.   If a password is required, enter the password.
4.   Answer **Y** or **N** to the automatic logoff question.
5.   Select a file transfer protocol by typing the indicated letter, such as **Z** for Zmodem (the recommended protocol).
6.   If you select Zmodem, the transfer will begin automatically. If you select another protocol, you may have to initiate the transfer yourself. (In most datacomm programs, the PAGE DOWN key initiates the download.)
7.   When the download is complete, press ENTER to return to the File Menu.
8.   To exit the BBS, type **G** and press ENTER.

If you don't know the file name

1.   From the Main Menu, type **F** to access the Files Menu. For a list of file areas, type **L**, press ENTER, then type **L** and press ENTER again. (If you do not type the second *L*, you will list all of the files on the BBS.)
2.   Mark each file area you would like to examine by typing its list number and pressing ENTER.
3.   Enter **L** to list all the files in the selected file areas. Enter **C** to go forward in the file list and **P** to go back.
4.   To mark one or more files for download, type **M**, press ENTER, type the list numbers of the files, and press ENTER again.
5.   Enter **D**. You will see a list of the files you have marked. Enter **E** if you would like to edit the list; otherwise enter **D** again to start the download process.
6.   Select a file transfer protocol by typing the indicated letter, such as **Z** for Zmodem (the recommended protocol).
7.   If you select Zmodem, the file will transfer automatically. If you select another protocol, you may have to initiate the transfer yourself. (In most data communications programs, the PAGE DOWN key initiates the download.)
8.   When the download is complete, press ENTER to return to the File Menu.
9.   To exit the BBS, type **G** and press ENTER.

6.4 On-Line Upgrade via Flash PEROM and FLASHPRO Software

The MR4800E Rack Controller has a Flash PEROM (Programmable and Erasable Read Only Memory) chip which contains firmware code. At various times, Multi-Tech will add enhancements and/or fixes to the firmware. The Flash technology used allows these firmware upgrades to be loaded directly into the PEROM via the MR4800E Controller's back configuration port connection. The FLASHPRO software is used to reprogram the Flash PEROM using an Intel .HEX file.

This program requires:

- MS-DOS version 2.11 or higher,

- serial port on dedicated management console,

- 384K RAM available, and

- Multi-Tech supplied INTEL .HEX file to load.

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